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Images in Clinical Rheumatology

Utility of Single-Photon Emission Computed Tomography and Computed Tomography Imaging in Bone Infarction☆

Utilidad de las imágenes híbridas SPECT/TC en el infarto óseo

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A 36-year-old male, amateur cyclist, presenting with intermittent pain in both knees of long duration. Physical examination found no signs of infection or inflammation. A radiograph was taken that showed no fracture lines, although serpiginous lesions were observed of oval-shaped morphology, and sclerotic borders in the proximal third of both tibias.

A 2-stage scintigraphy was performed of both tibias after injection of 740 MBq 99mTc-hydroxymethylene biphosphonate.

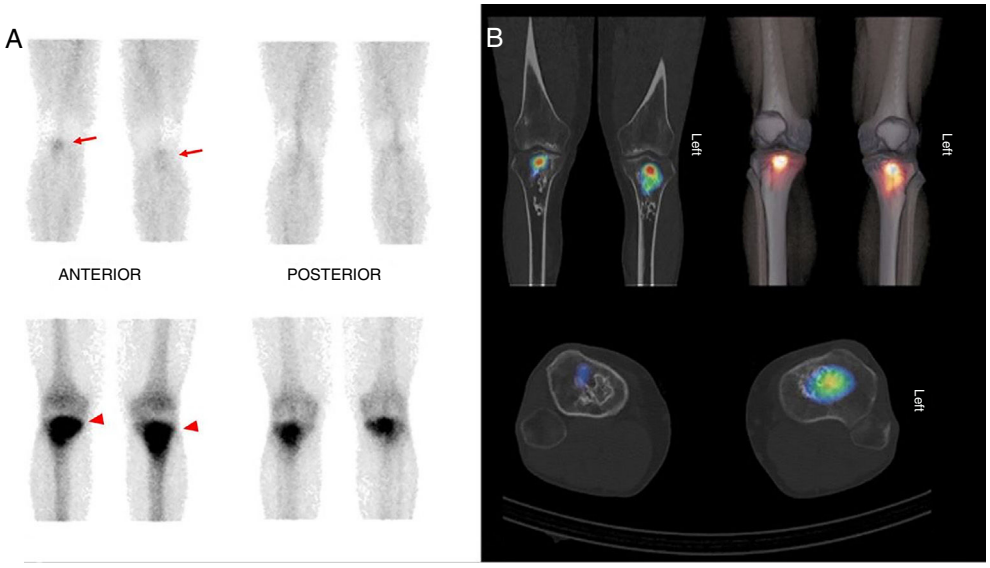

Fig. 1. 2-Stage scintigraphy (A) showing intense increased radiotracer uptake in the proximal thirds of the tibias. The hybrid SPECT/CT images and 3D reconstruction (B) show osteoblastic activity in the epiphysis of both tibias with no involvement of adjacent soft tissues.

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Increased radiotracer distribution was observed in the early images (5 min post injection) compatible with alteration of the vascular pool in the proximal thirds of both tibias (Fig. 1A, arrow). In the later stage, 3 h post injection, bilateral and symmetrical deposition of biphosphonates were observed in both proximal tibial metaphyses (Fig. 1A, tips of arrow), which indicates increased osteoblastic activity at that level. We then performed hybrid SPECT/CT images, and 3D reconstruction (Fig. 1B), which enabled us to relate the increased radiotracer activity to certain regions of the sclerotic bone lesions that were metabolically active, and therefore with bone remodelling capacity, differentiating them from the regions that were necrotic. Moreover, no soft tissue involvement was seen on this study.[1]

Hybrid SPECT/TC images are useful in the suspicion of bone infarction since they increase the diagnostic precision of conventional scintigraphy and provide more precise information on the location and extension of the infarction, and on the possible involvement of adjacent soft tissue.[2] Hybrid SPECT/CT images also make it possible to distinguish necrotic tissue from tissue that is still viable,[3,4] enabling more individualised and targeted treatment.

Conflict of interests

The authors have no conflict of interests to declare.

References

1. Pazianas M, Russell R, Fogelman I. Osteonecrosis of the jaw: more heat than light. J Nucl Med. 2009;50:6–7.
2. Mariani G, Bruselli L, Kuwert T, Kim E, Flotats A, Israel O, et al. A review on the clinical uses of SPECT/CT. Eur J Nucl Med Mol Imaging. 2010;37:1959–85.
3. Dore F, Filippi L, Biasotto M, Chiandussi S, Cavalli F, di Lenarda R. Bone scintigraphy and SPECT/CT of bisphosphonate-induced osteonecrosis of the jaw. J Nucl Med. 2009;50:30–5.
4. Lafforgue P, Trijau S. Bone infarcts: unsuspected gray areas? Jt Bone Spine. 2016;83:495–9.